

Appl. No. 10/577,652  
 Amendment dated October 31, 2010  
 Reply to Office Action of August 4, 2010

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# **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

## **Listing of claims:**

1. **(Currently amended)** Apparatus for delivering radiation to a target volume (46) beneath a ~~tissue-skin~~ surface, comprising:

a radiation source (16) for inputting a beam of said radiation having an input of predetermined-energy fluence; and

a ~~beam converter-conversion system (17)~~ having:

a first radiation directing element (24) having a symmetry axis (27), comprising a rotator (21) having a rotation axis collinear with said symmetry axis for rotating said input radiation around said symmetry axis said first radiation directing element beam-converter-adapted to direct said input radiation in a plurality of directions spaced around said symmetry axis and a second radiation directing element (25) for redirecting said directed radiation through said surface radially inwards towards said symmetry axis onto said inclined-angularly to said symmetry axis, towards-at least one target volume (46) disposed on said symmetry axis beneath said skin surface, such that said radiation is spread out in a rotational path on said surface, wherein

said second radiation directing element (25) has convergence ability in at most, one plane, and

any of said radiation impinging on said surface on said symmetry axis has a fluence which is less than the maximum fluence of said radiation on said skin surface, said radiation has an energy fluence at said surface which is lower on said axis than the maximum energy fluence of said radiation on said surface,

~~—said energy fluence of said radiation at said surface is lower than said predetermined-energy fluence of said input beam, and~~

~~—said energy fluence of said radiation at said at least one target volume is higher than said energy fluence of said radiation at said surface.~~

2. **(Cancelled)**

3. **(Currently amended)** The apparatus according to claim 2-1 wherein said second radiation directing element beam-converter further comprises at least one reflective element (25) for redirectingdirecting said directed radiation through said surface radially inwards towards said symmetry axis onto and said at least one target volume.

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4. (Currently amended) The apparatus according to claim 2-3 wherein said radiation has a spectral band between 300nm and 11000nm.

5. (Currently amended) The apparatus according to claim 2-3, said apparatus being configured such that wherein said energy fluence of said redirected input radiation is less than or equal to said predetermined input energy fluence.

6. (Currently amended) The apparatus according to claim 2-1, said apparatus being configured such that wherein said radiation at said target volume has an energy fluence less than or equal to said predetermined energy fluence is essentially non-focused at said target volume.

7. (Currently amended) The apparatus according to claim 2-1 wherein said rotated redirected radiation is in a collimated form.

8. (Cancelled)

9. (Currently amended) ~~The apparatus according to claim 1 wherein said beam converter comprises a~~ Apparatus for delivering radiation to a target volume (49) beneath a skin surface, comprising:

a radiation source (16) for inputting a beam (86) of said radiation having an input energy fluence; and

a beam conversion system (17) having:

reflective beam divider (81) having a symmetry axis (82) for spreading said input radiation in said plurality of directions spaced around said symmetry axis, and a reflective beam collector (83) for redirecting said spread out radiation through said surface radially inwards towards said symmetry axis, onto said at least one target volume (49) disposed on said symmetry axis beneath said skin surface, wherein

said reflective beam collector (83) has convergence ability in at most, one plane.

10. (Currently amended) The apparatus according to claim 9, said apparatus being configured such that wherein said energy fluence of said redirected radiation is less than or equal to said predetermined energy fluence is essentially non-focused at said target volume.

11. (Original) The apparatus according to claim 9 wherein said radiation has a spectral band between 300nm and 11000nm.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Currently amended) A method for delivering radiation beneath a ~~tissue~~ skin surface, comprising the steps of:

providing a radiation source for inputting a beam of said radiation having an input of predetermined energy fluence; and

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converting said input beam into radiation directed in a plurality of directions spaced around a symmetry axis and inclined angularly to said symmetry axis, towards at least one target volume disposed on said symmetry axis beneath said skin surface, such that:

~~said radiation has an energy fluence at said surface which is lower on said axis than the maximum energy fluence of said radiation at said surface,~~

said radiation impinging on said surface on said symmetry axis has a fluence which is less than the maximum fluence of said radiation on said skin surface.

~~said energy fluence of said radiation at said surface is lower than said predetermined energy fluence of said input beam, and~~

~~said energy fluence of said radiation at said at least one target volume is higher than said energy fluence of said radiation at said surface,~~

said radiation has convergence controllable independently in the plane parallel to the surface and in the plane perpendicular to the surface.

16. (Original) A method according to claim 15 and further comprising the step of rotating said input radiation around said symmetry axis, such that said radiation is spread out in a rotational path on said surface.

17. (Original) A method according to claim 16 and also comprising the step of providing at least one reflective element for directing said radiation through said surface radially inwards towards said symmetry axis and said target volume.

18. (Original) A method according to claim 16 and wherein said radiation has a spectral band between 300nm and 11000nm.

19. (Currently amended) A method according to claim 16 and ~~wherein said energy fluence of said directed input radiation is less than or equal to said predetermined energy fluence~~ further comprising the step of converging said radiation onto said target volume without the use of elements having optical power.

20. (Currently amended) A method according to claim 16 and wherein said radiation ~~at said target volume has an energy fluence which is less than or equal to said predetermined energy fluence~~ is essentially non-focused at said target volume.

21. (Original) A method according to claim 16 and wherein said rotated radiation is in a generally collimated form.

22. (Cancelled)

23. (Original) A method according to claims 15, and further comprising the step of providing a reflective beam divider for spreading said input radiation in said plurality of directions, and a reflective beam collector for redirecting said spread out radiation towards said target volume.

24. (Currently amended) A method according to claim 23 and ~~wherein said energy fluence of said directed input radiation is less than or equal to said predetermined energy~~



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fluence further comprising the step of converging said radiation onto said target volume without the use of elements having optical power.

25. **(Original)** A method according to claim 23 and wherein said radiation has a spectral band between 300nm and 11000nm.

26. **(New)** The apparatus according to claim 1 wherein said beam conversion system converges said radiation onto said target volume without the use of elements having optical power.

27. **(New)** The apparatus according to claim 1 wherein said second radiation directing element converges said radiation onto said target volume without the use of elements having optical power.

28. **(New)** The apparatus according to claim 9 wherein said beam conversion system converges said radiation onto said target volume without having optical power.